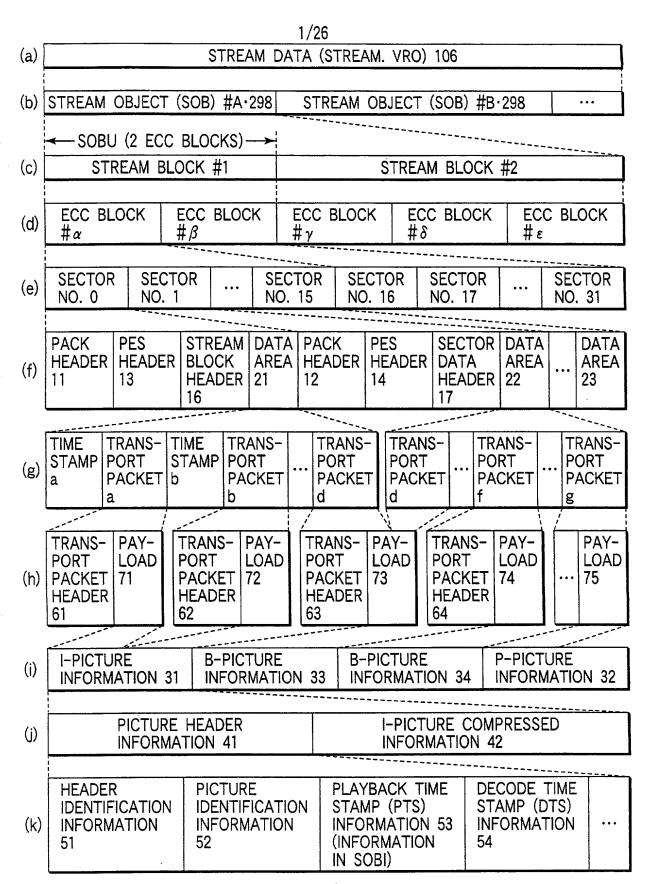
OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 1_ OF_26_



F I G. 1

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>2</u> OF <u>26</u>

2/26

ROOT DIRECTORY 100

SUBDIRECTORY 101

DVD_RTR DIRECTORY (DVD_RTAV) 102

DATA FILE 103

RTR. IFO (VR MANGR. IFO; NAVIGATION DATA) 104

STREAM. IFO (SR_MANGR. IFO/SR_MANGR.BUP) (NAVIGATION DATA) 105

SR_PRIVT. DAT/SR_PRIVT. BUP (NAVIGATION DATA UNIQUE TO APPLICATION) 105a

STREAM. VRO (SR_TRANS. SRO) (STREAM DATA) 106

RTR_MOV. VRO (VR_MOVIE. VRO; MOVIE REAL-TIME VIDEO OBJECT) 107

RTR_STO. VRO (VR_STILL. VRO; STILL PICTURE REAL-TIME VIDEO OBJECT) 108

RTR_STA. VRO (VR_AUDIO. VRO; AUDIO OBJECT OF POSTRECORDED AUDIO, ETC.) 109

SUBDIRECTORY 110

VIDEO_TS (VIDEO TITLE SET) 111

AUDIO TS (AUDIO TITLE SET) 112

SUBDIRECTORY FOR SAVING COMPUTER DATA 113

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 3_OF_26_

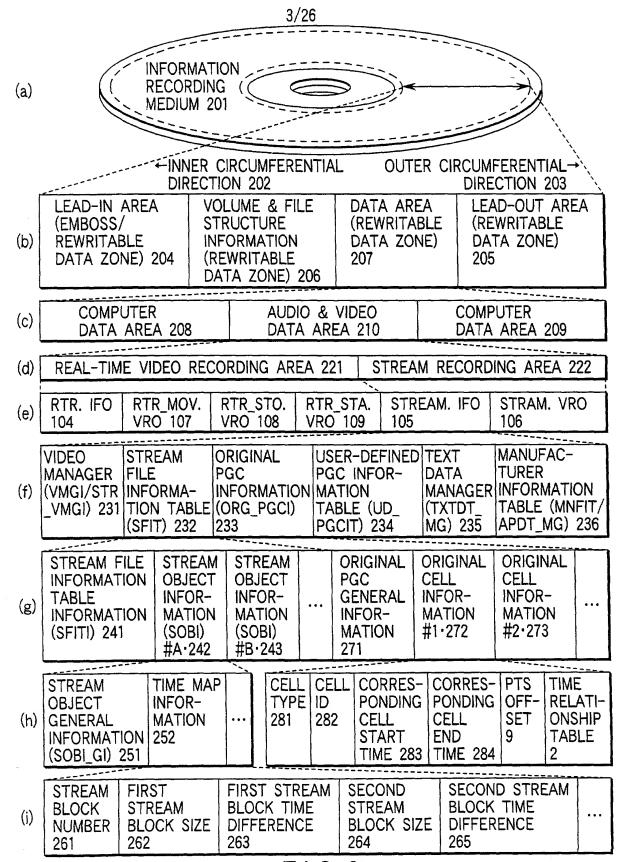


FIG.3

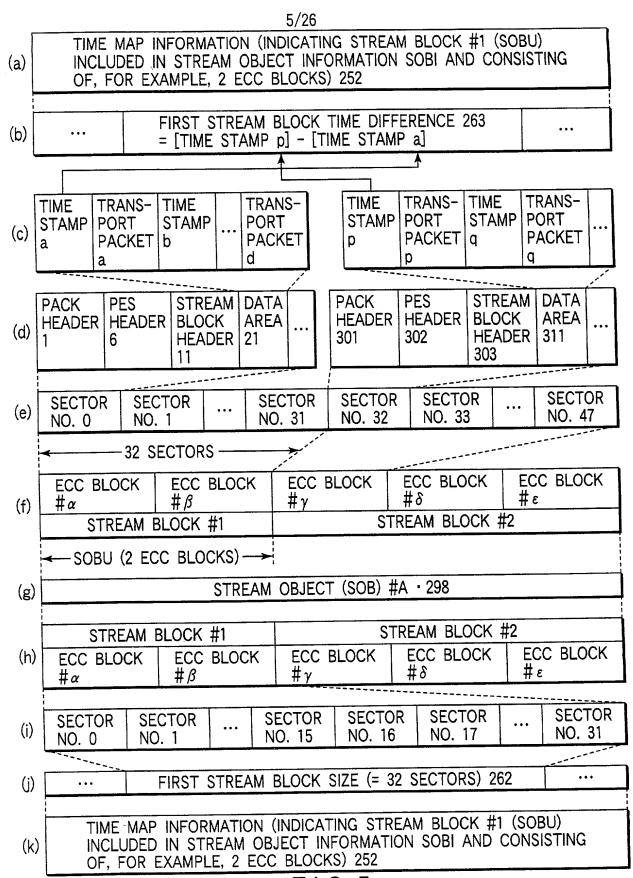
OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 4_ OF_26__

4/26

2 ECC BLOCKS (32 SECTORS) = 1 STREAM OBJECT UNIT (SOBU)

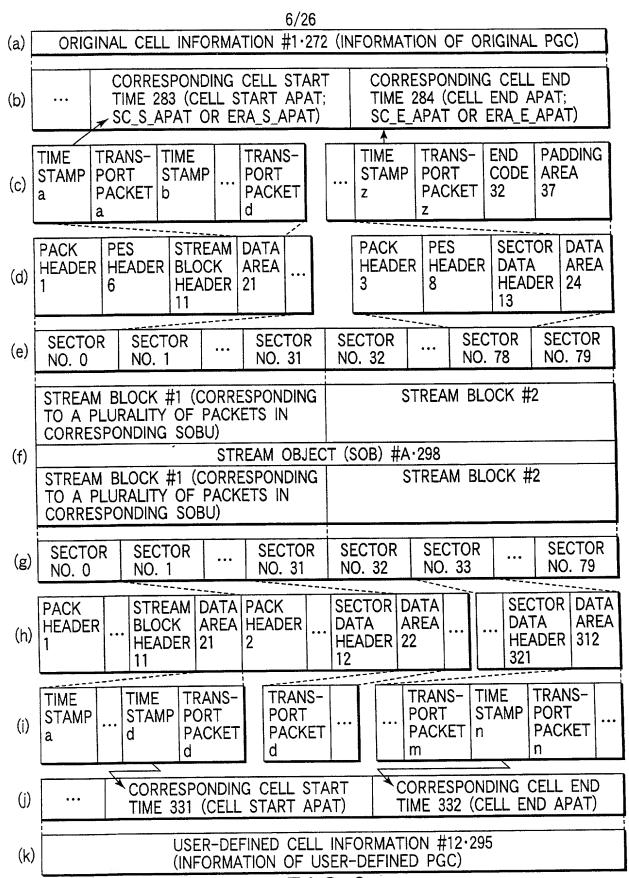
	STREAM OBJECT ONT (SODO)									
	STREAM DATA (STREAM. VRO OR SR_TRANS. SRO FILE) 106									
ECC BLOCK # a	ECC BLOCK #β	ECC BLOCK #γ	OCK BLOCK BLOCK		EC(BL(#ζ	CK	ECC BLOCK # n		ECC BLOCK #θ	ECC BLOCK # t
STREA BLOCK		B 3	SB #4			EAM CK #5				
1		-SOB#A-	-	SOB#B>						
STF →		STREAM OBJECT #B·299 → INFORMATION OF SOB#B IS DESCRIBED IN SOBI#B·243								
ORIGINAL CELL #1·291 ORIGINAL CELL #2·29 → CORRESPONDING INFORMATION IS DESCRIBED IN ORIGINAL CELL INFORMATION #1·272 ORIGINAL CELL INFORMATION #2·273							ER- FINED LL OR- TION I • 294	DE CE IN M	SER- FINED ELL FOR- ATION 2·295	USER- DEFINED CELL INFOR- MATION #31-297
ORIGINAL PGC 290 → CORRESPONDING INFORMATION IS DESCRIBED IN ORIGINAL PGC INFORMATION 233 USER-DEFIN PGC #a·293 CORRESPON INFORMATIO DESCRIBED USER-DEFIN PGC INFORM TABLE 234									→ DING N IS IN ED	USER- DEFINED PGC #b·296
	STREAM INFORMATION (STREAM.IFO; NAVIGATION DATA) 105									

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 5_ OF_26__



F I G. 5

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>6</u> OF_26__



F I G. 6

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 7_ OF_26_

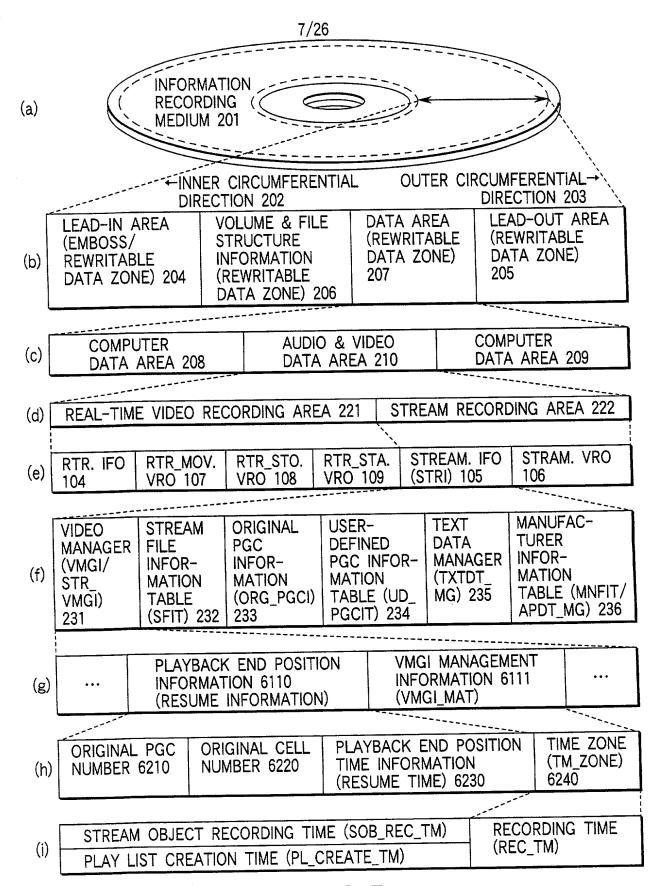
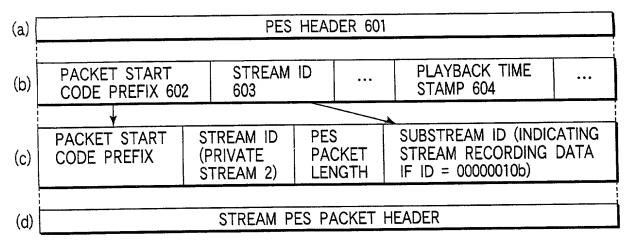


FIG.7

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 8_OF_26__

8/26



F1G.8

Г	STREAM BLOCK HEADER 11											
(a)	SUBSTR	CATION ER		APPLICATION HEADER EXTENSION			١	STUFFING BYTE				
<u>}-</u>												
	AU_START AU_END COPYRIGHT STATE OF PACKE									PACKET		
! ! !												
(b)	TRANSPORT PACKET STREAM BLOCK SECTOR DATA HEADE INFORMATION 611 INFORMATION 612 INFORMATION 613											
(c)	TRANS- PORT PACKET INFOR- MATION 611	TIME 622 PO PA AT		POI PA	ORT ACKET TTRIBUTE		STREAM BLOCK SIZE 624	STREAM BLOCK SIZE TIME DIFFERENCE 625		FIRST ACCESS POINT 626		TRANS- PORT PACKET CONNEC- TION FLAG 627
(d)	NUMBER OF TRANSPORT PACKETS 631 TRANSPORT PACKET (NUMBER OF APPLICATION PACKETS) MAPPING TABLE 632											
(e)	I-PICTURE B/P-PIC MAPPING START POSITIC 641 MAPPIN TABLE			T FION PING	N	VIDEO PACKET MAPPING TABLE 643	G MAPPI		PACKET MAPPING TABLE	UNIG INFO MAP		GRAM QUE PRMATION PING LE 645

FIG. 9

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 9_OF_26_

9/26

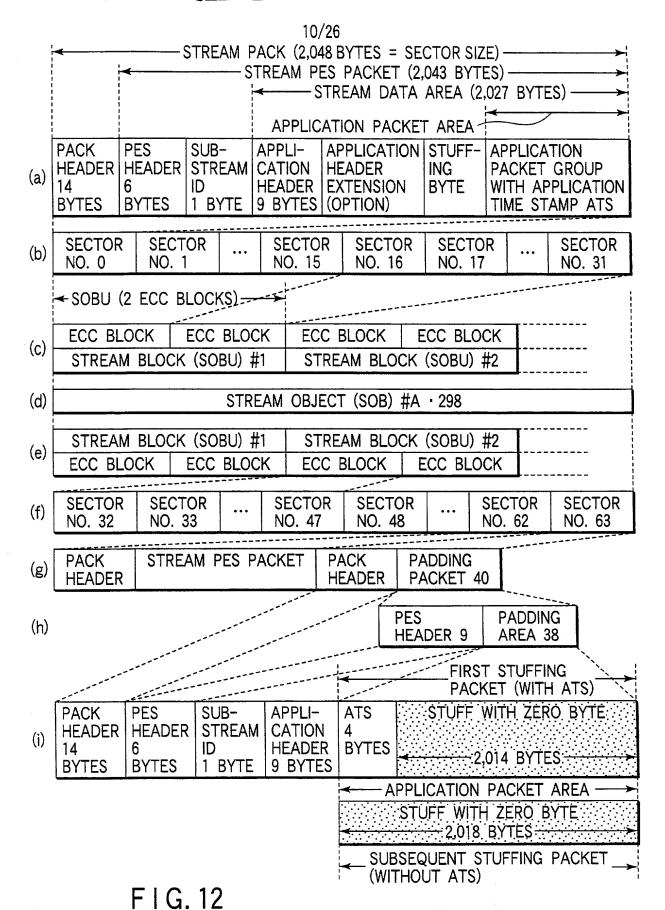
(a)	SECTOR DATA HEADER 12 (APPLICATION HEADER)										
(b)	FIRST ACCESS POINT 651 TRANSPORT PACKET CONNECTION FLAG 652										
(c)	APPLICATION PACKETS (TRANSPORT PACKETS) AP_Ns			POS FIRS APF PAC FIRS	ST PLICATION CKET	IN IN HEAVE	TENSION HEAD ORMATION DICATING ETHER OR NADER EXTEN D/OR STUFF TE ARE/IS P TENSION_HEAD	SE TH GE ST IN	ID OF SERVICE THAT GENERATED STREAM OF INTEREST SERVICE_ID		
(d)	PACK HEADER 1	PES HEADER 6	SUB- STRE ID	1	AM HEADER EXTENSION BYTE PACI					PACKET GROUP W TIME STA	'ITH
	STREAM PES PACKET (2,034 BYTES) ONE STREAM PACK (2,048 BYTES FIXED; EQUAL TO ONE SECTOR SIZE)										

FIG. 10

	FIRST STREAM BLOCK	SECOND STREAM BLOCK
STREAM BLOCK SIZE	FIRST STREAM BLOCK SIZE 262	SECOND STREAM BLOCK SIZE 264
STREAM BLOCK TIME DIFFERENCE	FIRST STREAM BLOCK TIME DIFFERENCE 263	SECOND STREAM BLOCK TIME DIFFERENCE 265
NUMBER OF PACKETS (AP_Ns)	335	328

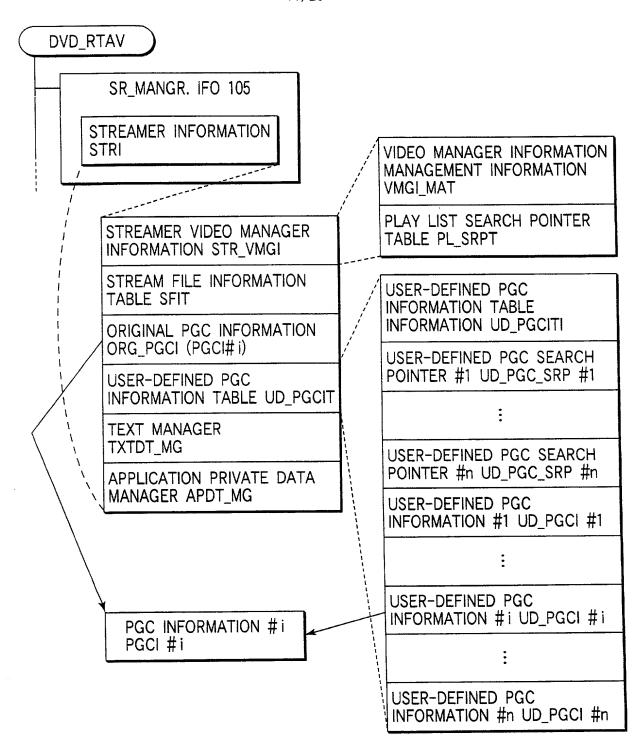
FIG. 11

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 10_ OF_26__



OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 11_ OF_26_

11/26



OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET _12__ OF__26___

12/26

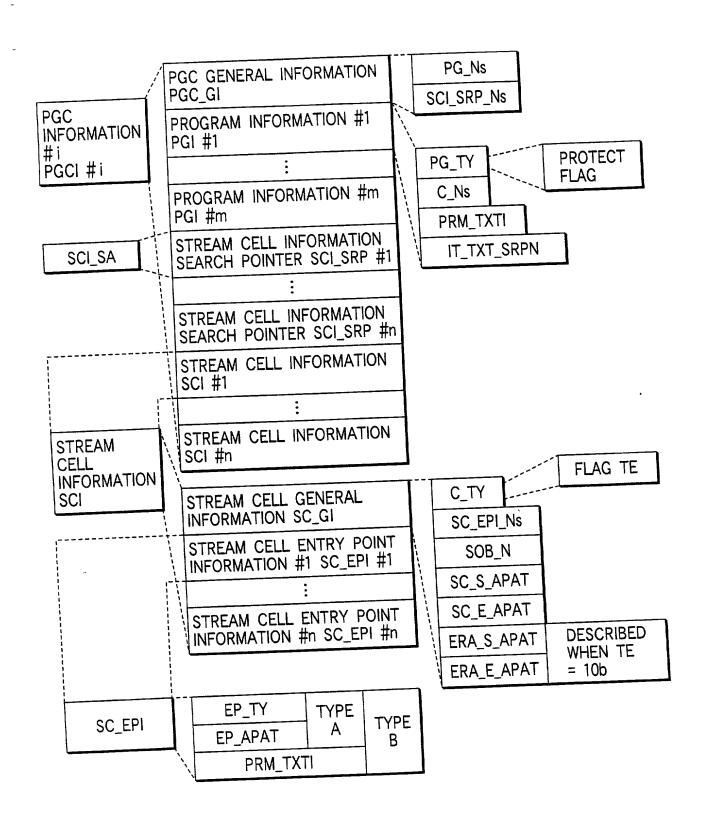


FIG. 14

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 13_ OF_26__

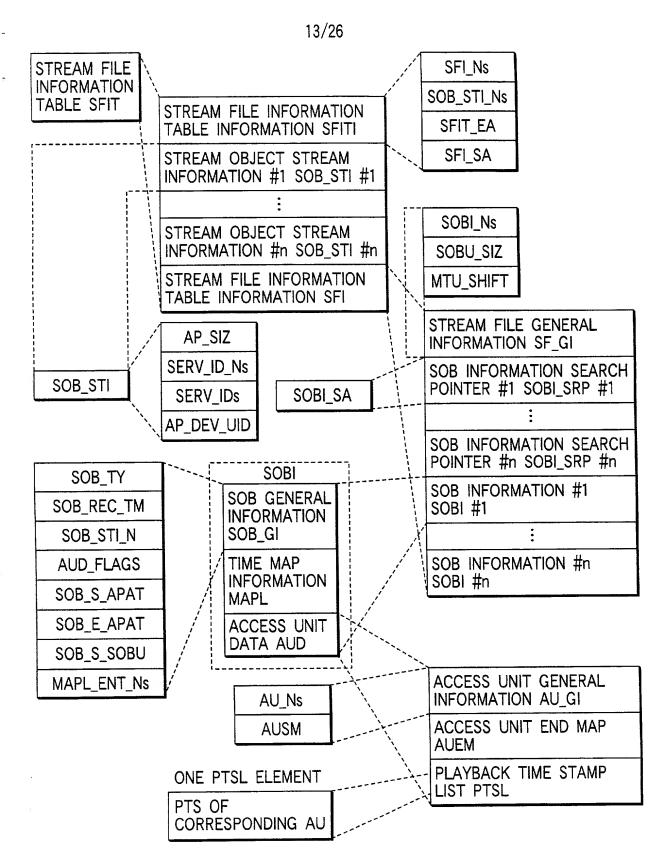


FIG. 15

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 14_ OF_26__

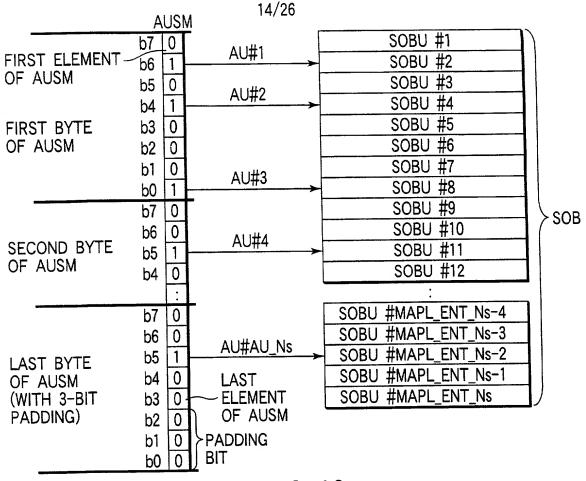
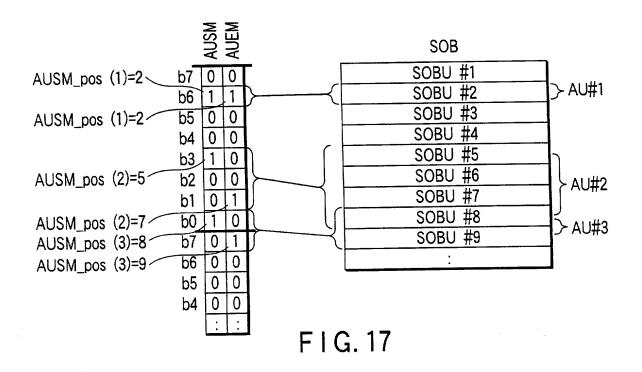
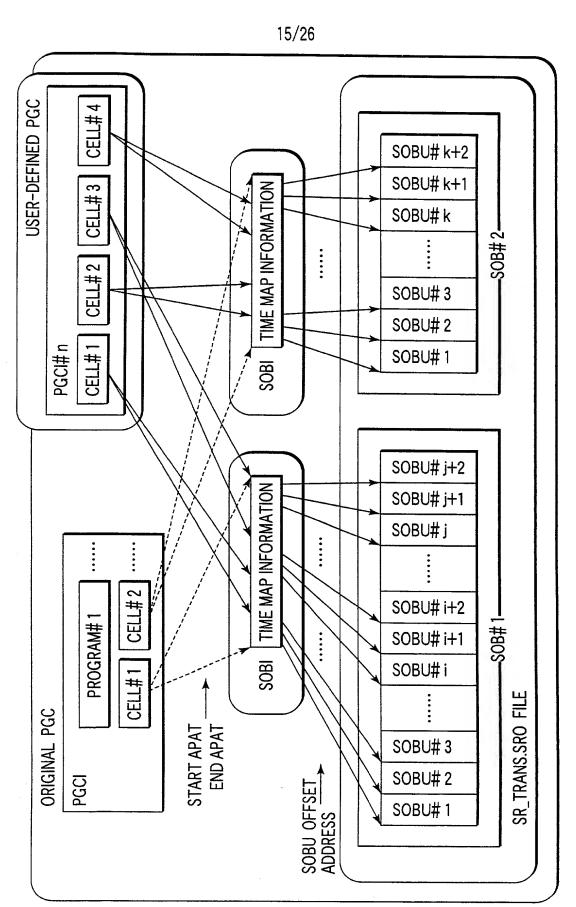


FIG. 16



OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 15_ OF 26_



F I G. 18

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 16_ OF_26_

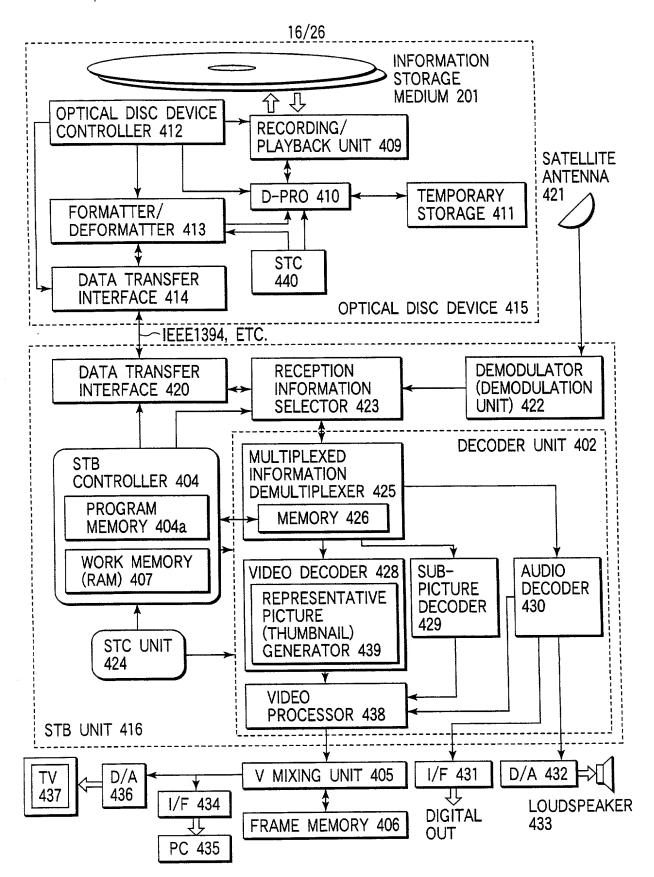
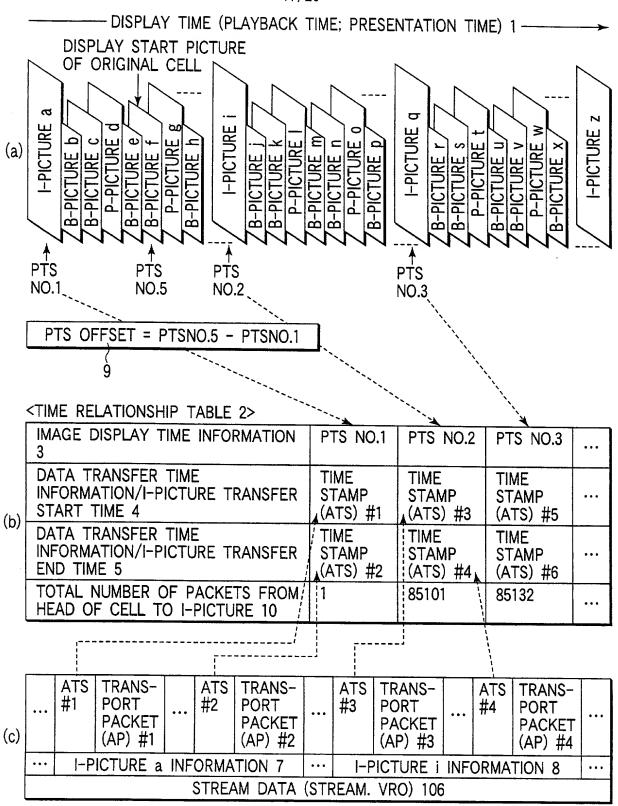


FIG. 19

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>17</u> OF <u>26</u>

17/26



OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>18</u> OF <u>26</u>

18/26

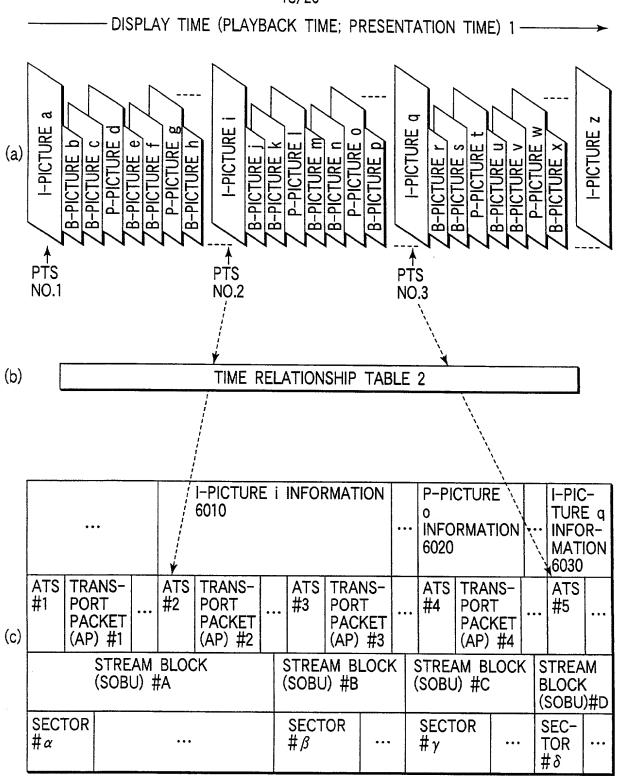
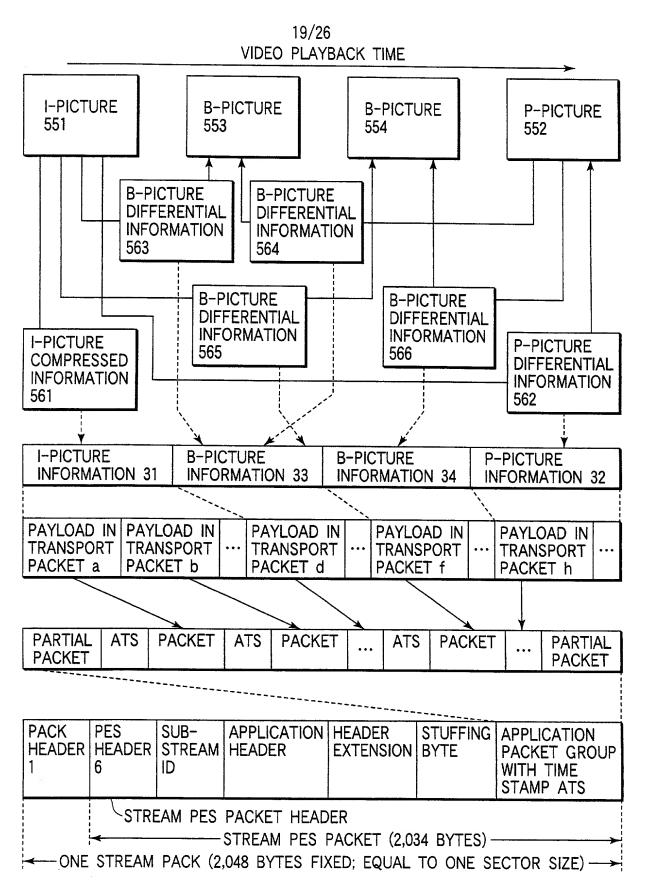


FIG. 21

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 19 OF 26



F I G. 22

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>20</u> OF <u>26</u>

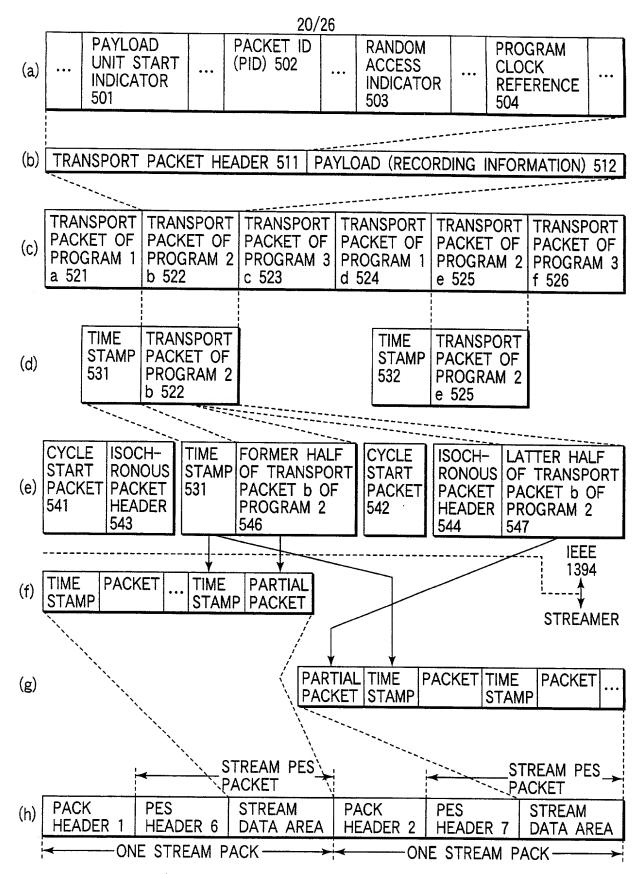


FIG. 23

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 21_OF_26_

21/26

START

SELECT REQUIRED PROGRAM INFORMATION BY RECEPTION SELECTOR SOI

TEMPORARILY SAVE REQUIRED PROGRAM INFORMATION IN MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER S02

ADDITIONALLY WRITE RECEPTION TIME OF EACH TRANSPORT PACKET (OR APPLICATION PACKET) IN MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER S03

EXTRACT PTS INFORMATION (OR INFORMATION INDICATING NUMBER OF CORRESPONDING FIELDS) FROM PICTURE HEADER INFORMATION 41 OF EACH PACKET RECORDED IN MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER S04

GENERATE TIME RELATIONSHIP TABLE IN STB CONTROLLER AND TEMPORARILY STORE GENERATED TIME RELATIONSHIP TABLE IN WORK MEMORY S05

TRANSFER PACKET DATA TEMPORARILY SAVED IN MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER TO OPTICAL DISC DEVICE WHILE HOLDING RECEPTION TIME INTERVAL BETWEEN STB UNIT AND OPTICAL DISC DEVICE S06

RECORD TRANSFERRED PACKET DATA ON INFORMATION STORAGE MEDIUM S07

DATA TRANSFER
TO OPTIONAL DISC DEVICE COMPLETED?
\$08

YES

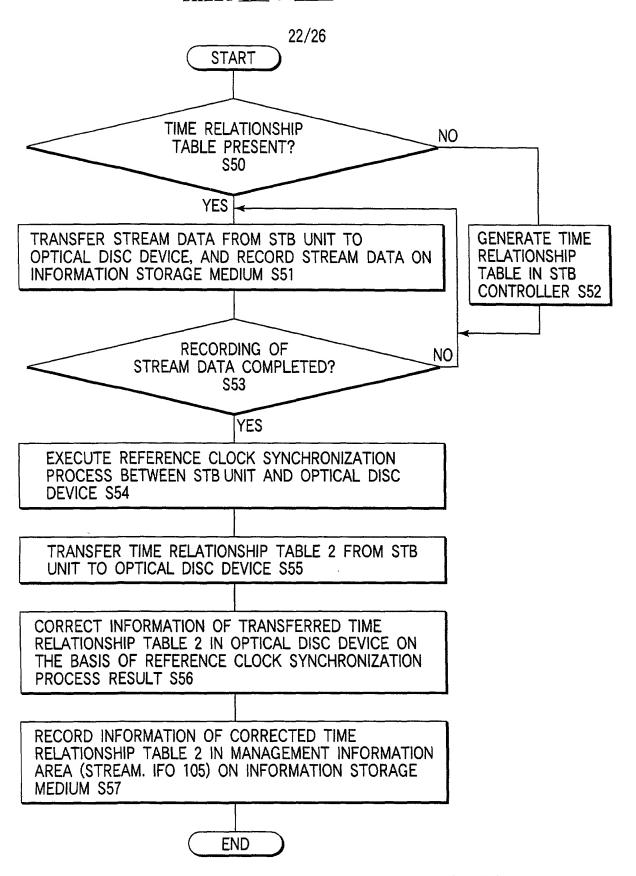
NO

TRANSFER INFORMATION OF TIME RELATIONSHIP TABLE TEMPORARILY RECORDED IN WORK MEMORY OF STB UNIT TO OPTICAL DISC DEVICE S10

RECORD INFORMATION OF TIME RELATIONSHIP TABLE IN MANAGEMENT INFORMATION RECORDING AREA (STREAM. IFO 105) IN INFORMATION STORAGE MEDIUM S11

END

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 22 OF 26



F I G. 25

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 23 OF 26

START

23/26

RECEIVE PLAYBACK START TIME INFORMATION AND PLAYBACK END TIME INFORMATION S21

READ TIME RELATIONSHIP TABLE 2 OF ORIGINAL CELL INFORMATION 272 CORRESPONDING TO PLAYBACK START POSITION OF INTEREST FROM MANAGEMENT INFORMATION RECORDING AREA (STREAM. IFO 105) IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY STORE READ TABLE IN WORK MEMORY IN STB CONTROLLER S22

READ TIME MAP INFORMATION 252 OF STREAM OBJECT INFORMATION (SOBI) 242 CORRESPONDING TO PLAYBACK START POSITION OF INTEREST, AND TEMPORARILY STORE READ INFORMATION IN WORK MEMORY IN STB CONTROLLER S23

CHECK DEFFERENCE BETWEEN DISPLAY START TIME OF ORIGINAL CELL OF INTEREST AND DISPLAY TIME OF IMMEDIATELY PRECEDING I-PICUTURE a FROM VALUE OF PTS OFFSET 9 S24

CHECK POSITION OF I-PICTURE WHICH IS LOCATED IMMEDIATELY BEFORE PLAYBACK START TIME DESIGNATED FROM TIME RELATIONSHIP TABLE 2 S25

CHECK VALUE OF TIME STAMP #2 OF I-PICTURE i OF INTEREST FROM TIME RELATIONSHIP TABLE 2 S26

CHECK STREAM BLOCK (SOBU) #A THAT INCLUDES TIME STAMP #2 OF I-PICTURE I OF INTEREST FROM TIME MAP INFORMATION 252, AND THEN CHECK ADDRESS OF FIRST SECTOR $\#\alpha$ OF THAT STREAM BLOCK S27

INFORM OPTICAL DISC DEVICE OF ADDRESS OF SECTOR $\#\alpha$ OF INTEREST TO MAKE OPTICAL DISC DEVICE ACCESS PREDETERMINED LOCATION OF INFORMATION STORAGE MEDIUM, AND START PLAYBACK S28

STB CONTROLLER INFORMS DECODER UNIT OF INFORMATION OF PTS NO. 6 INDICATING DISPLAY START TIME S29

OPTICAL DISC DEVICE PLAYS BACK INFORMATION FROM HEAD OF STREAM BLOCK (SOBU) #A AND TRANSFERS IT TO MEMORY IN DECODER UNIT S30

READ PICTURE IDENTIFICATION INFORMATION 52 FROM MEMORY IN DECODER UNIT, AND DISCARD (OR IGNORE) DATA BEFORE INPUT I-PICTURE \$31

START DECODING FROM HEAD POSITION OF I-PICTURE I, AND START DISPLAY FROM POSITION OF DESIGNATED PTS NO. 6 S32

REPEAT SAME PROCESSES AS IN STEPS S24 TO S28 TO CHECK ADDRESS ON INFORMATION STORAGE MEDIUM CORRESPONDING TO PLAYBACK END TIME, AND PROCEED WITH PLAYBACK UNTIL END ADDRESS CORRESPONDING TO PLAYBACK END TIME S33

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 24_ OF_26_

> 24/26 START

SET "SPECIAL PLAYBACK MODE" FROM STB CONTROLLER IN DECODER UNIT, AND SET "I-PICTURE DISPLAY" S41

READ TIME RELATIONSHIP TABLE 2 OF ORIGINAL CELL INFORMATION 272 CORRESPONDING TO PLAYBACK START POSITION OF INTEREST FROM MANAGEMENT INFORMATION RECORDING AREA (STREAM. IFO 105) IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY STORE READ TABLE IN WORK MEMORY IN STB CONTROLLER S42

READ TIME MAP INFORMATION 252 OF STREAM OBJECT INFORMATION (SOBI) 242 CORRESPONDING TO PLAYBACK START POSITION OF INTEREST, AND TEMPORARILY STORE READ INFORMATION IN WORK MEMORY IN STB CONTROLLER S43

EXTRACT TIME STAMP VALUES OF START/END TIMES AT RESPECTIVE I-PICTURE POSITIONS FROM TIME RELATIONSHIP TABLE 2 S44

CHECK STREAM BLOCK (SOBU) THAT INCLUDES TIME STAMP VALUE OF EACH CORRESPONDING I-PICTURE FROM TIME MAP INFORMATION 252, AND CHECK ADDRESS OF FIRST SECTOR OF THAT STREAM BLOCK S45

OPTICAL DISC DEVICE PLAYS BACK INFORMATION IN ALL STREAM BLOCKS (SOBUS) INCLUDING RESPECTIVE I-PICTURES ON INFORMATION STORAGE MEDIUM, AND TRANSFERS INFORMATION TO MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER S46

DECODER UNIT READS PICTURE IDENTIFICATION INFORMATION 52 IN DATA TRANSFERRED TO MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER, AND DESCARDS DATA OTHER THAN I-PICTURE S47

TRANSFER I-PICTURE DATA SELECTED (NOT DESCARDED) IN MEMORY IN MULTIPLEXED INFORMATION DEMULTIPLEXER IN DECODER UNIT TO FRAME MEMORY S48

SEQUENTIALLY DISPLAY I-PICTURE DATA TRANSFERRED TO FRAME MEMORY ON TV (OR VIDEO MONITOR) S49

END

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET <u>25</u> OF <u>26</u>

25/26

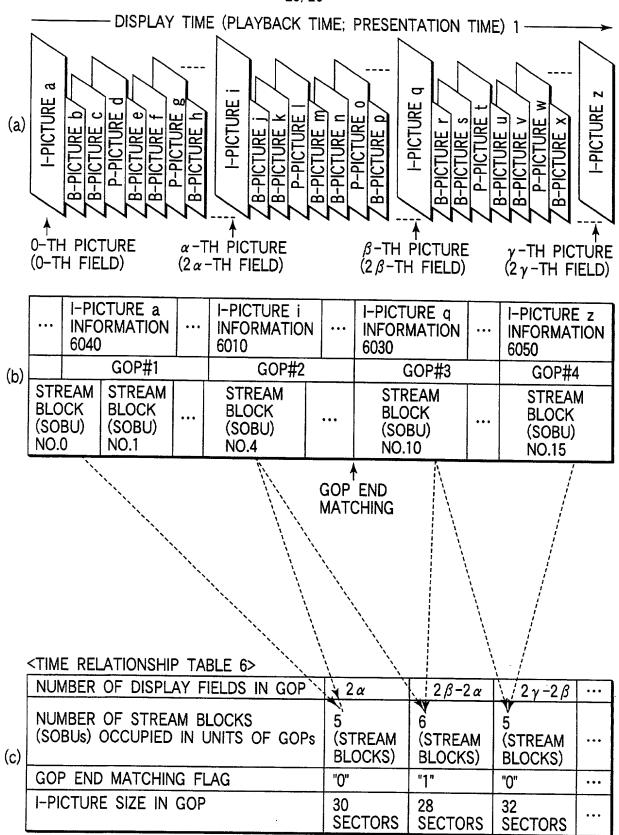


FIG. 28

OBLON, SPIVAK, ET AL DOCKET #:204442US-2S DIV INV:HIDEO ANDO ET AL SHEET 26_ OF_26_

26/26

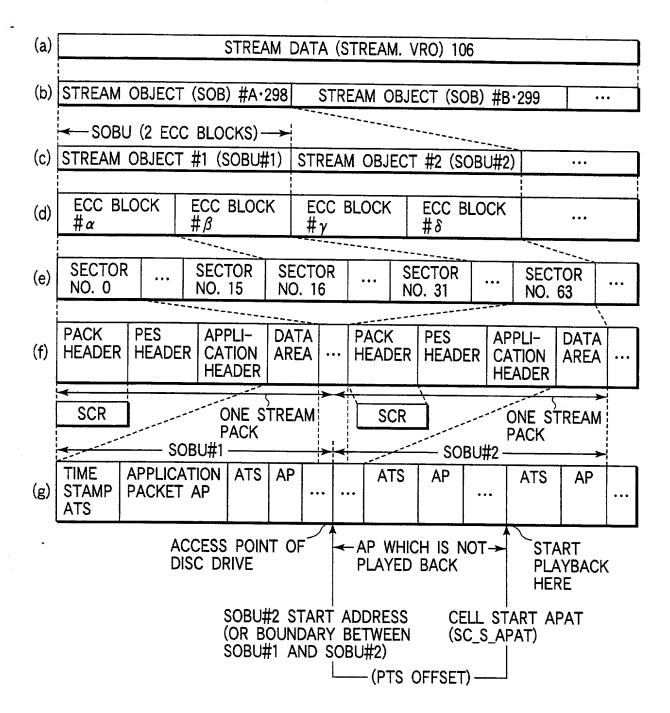


FIG. 29